

## Assessment of Ear, Nose and Throat Manifestations in Head Injury Cases: A Prospective Study

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Conflict of interest: Nil

### Abstract

**Aim:** A prospective study was done by us at tertiary care center to assess the ear, nose and throat manifestations in head injury cases.

**Materials & Methods:** The study was carried over a period of two years and 150 patients were included. Number of male patients were more than females and young age group was affected more. This study has been done to evaluate various ear, nose and throat manifestations and investigations which help in earlier diagnosis.

**Results:** Among 150 patients 120 (80%) were males and 30 (20%) were females, out of which three patients were in the age group of 0-15 yrs. Maximum i.e. 36 patients were in the age group of 31-45 yrs. 64 patients were having ear manifestations like bleeding from the ear (20), external ear laceration (10), fracture temporal bone (6), facial palsy (4), CSF otorrhoea (4), traumatic perforation (4), tinnitus (7) and vertigo (4).

**Conclusion:** Screening of all the patients with head and neck injuries for the presence of trauma in the ENT region should be introduced to enable early detection and therefore prevention of complications.

**Keywords:** Trauma, head injuries, RTA, Assault, ENT

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### Introduction

Head injury is a leading cause of death and disability. It can affect activities of daily life, the risk of readmission to hospital and subsequent death [1]. Also, it can lead to ongoing neurophysiologic deficits. Traumatic head injury may be associated with neck injury. Many patients die in the

field or shortly after arrival at the trauma center without regaining consciousness, suggesting a devastating primary brain injury [2]. Common causes of head injury are traffic accidents, home and occupational accidents, falls and assaults. But, most of the head injuries are from road traffic crashes.

Road traffic crashes remain a major cause of morbidity and mortality in the population despite advances in preventive and public health care and the emergency services. Road traffic crashes are a growing problem worldwide accounting for around 1.2 million deaths and over 50 million injuries annually [3]. It is expected that by the year 2020, they will rank third in the Global Burden of Diseases [4]. The growing number of deaths and injuries from RTCs reveal a serious and growing problem in most of the developing countries.

Most of the cases present with ear, nose and throat injuries and they need special attention by the ENT surgeons in addition to general surgeons and neurosurgeons. The commonest ENT manifestations following head injury are: injury to auricle, external auditory canal, temporal bone fractures, traumatic perforation of tympanic membrane, CSF otorrhoea, hearing loss, fracture of nasal bones and facial bones, cut throat injuries, laryngeal injuries.[5]

Due to advent of newer technologies of investigations and treatment like high resolution CT scan, MRI, newer endoscopic surgeries the management of head and neck injuries is significantly changed in past two decades. Accurate assessment of injuries is possible because of new techniques.[6] Hence the present study was conducted to assess the ear, nose and throat manifestations in head injury cases.

### Materials & Methods:

The prospective study of 150 patients of head injury having ear, nose and throat manifestations was carried out at department of ENT in ANMCH. The duration of study was two years.

### Inclusion criteria:

1. Patients of all age groups and genders.

2. Head injury patients who presented with ear, nose and throat manifestations.

### Exclusion criteria:

1. Patients with severe systemic diseases.
2. Patients who failed to follow up.
3. Patients who gave history of previous ENT diseases or surgeries.
4. Brought dead persons.

### Methods of Study:

Each patient was evaluated completely and detailed history was taken. Grading of head injury was done with Glasgow Coma Scale.

Basic blood investigations, radiological investigations, pure tone audiometry, nasal and laryngeal endoscopic examination was done as and when required.

The routine CT brain with HRCT temporal bone was done for patients with ear bleeding, facial palsy, CSF otorrhoea.

X - Ray nasal bone lateral view was done in suspected cases of nasal bone fractures. In cases of facio- maxillary trauma CT- face with 3D reconstruction was done. In cases of hearing loss, tinnitus and traumatic perforation of tympanic membrane, pure tone audiometry was done.

CT neck was done in suspected cases of injury to larynx trachea and esophagus.

All patients were followed up in our OPD, following discharge from hospital.

### Results:

Among 150 patients 120 (80%) were males and 30 (20%) were females, out of which three patients were in the age group of 0-15 yrs. Maximum i.e. 36 patients were in the age group of 31-45 yrs. [Graph 1]

Among 150 patients, majority of patients showed (63%) ear manifestations, followed by nose injury (30%). [Graph 2]

Most common cause of head injury was road traffic accidents 61% followed by assaults, industrial accidents and self-fall. [Graph 3]

Majority of patients belonged to 31-45 years of age (39%), followed by 16-30 years (29%). 16%, 13% and 3% contributed to 46-60 years, 0-15 years and >60 years of age, respectively. [Graph 4]

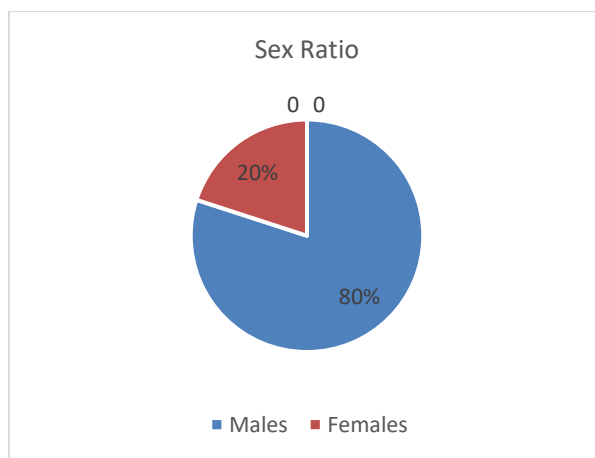
64 patients were having ear manifestations like bleeding from the ear (20), external ear

laceration (10), fracture temporal bone (6), facial palsy (4), CSF otorrhoea (4), traumatic perforation (4), tinnitus (7) and vertigo (4). [Table 1]

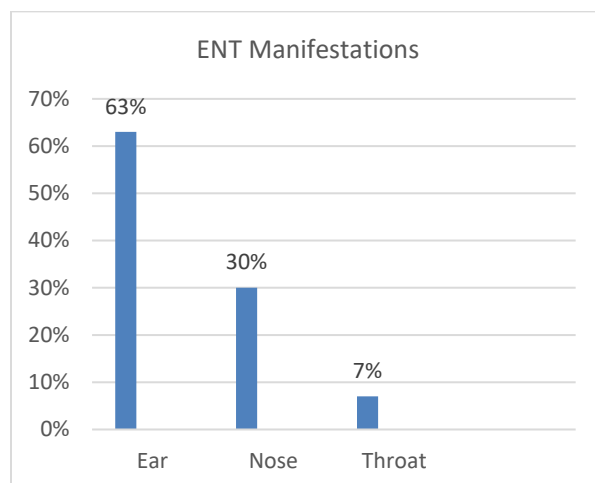
44 patients had injury to nose presenting with fracture nasal bones (21), lacerations (14), Le Fort fractures (3), septal injuries (4), and CSFrhinorrhoea (2). [Table 2]

While, in throat manifestation predominant presentation was of vocal cord palsy and laryngeal edema, followed by cut throat injuries and tracheal stenosis. [Table 3]

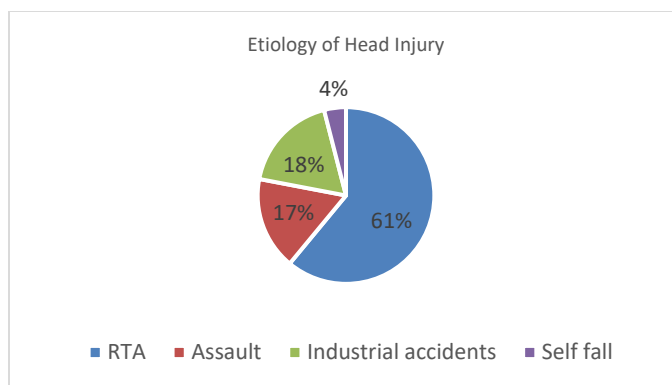
**Graph 1: Showing Gender wise Distribution**



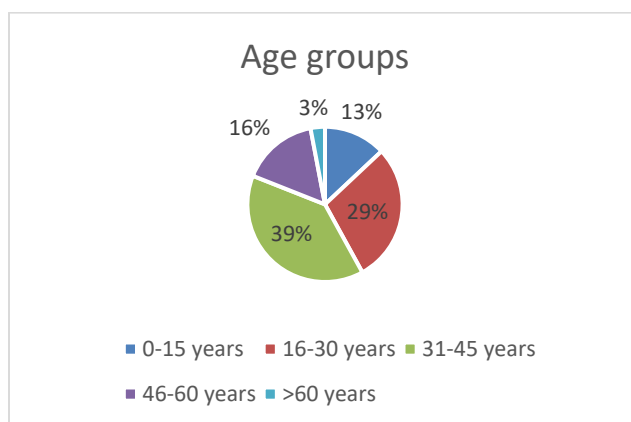
**Graph 2: Showing ENT Manifestations**



**Graph 3: Showing ENT Manifestations**



**Graph 4: Showing Age wise Distribution.**



**Table 1: Showing Ear Manifestations**

Ear Manifestations	Numbers
Bleeding	20
Lacerations	10
Fracture temporal bone	6
Facial palsy	4
Hearing loss	4
CSF otorrhoea	4
Traumatic perforation	5
Tinnitus	7
Vertigo	4
Total	64

**Table 2: Showing Nose Manifestations**

Nose manifestation	Numbers
Fracture nasal bone	21
Le Forts fracture	3
CSF Rhinorrhea	2

Lacerations	14
Septal injuries	4
Total	44

**Table 3: Showing Throat Manifestations**

Throat manifestations	Numbers
Vocal cord palsy	4
Laryngeal edema	3
Laryngeal trauma	2
Tracheal stenosis	1
Total	10

**Discussion:**

Potstic explained in his study that trauma to external ear occurs in all age groups because the auricle has an unprotected position on the head and it is more in vehicular accidents. [8] Templer et al also reported that ear injuries occur in patients of all ages. Moderate intensity force causes lacerations or even amputation of pinna.[9]

There was a study conducted in the year 2005 in Qatar revealing that road traffic crashes and injuries represent a significant health care problem and, currently, they are the leading cause of death. This highlighted the importance of conducting a study on head and neck injuries in the population of Qatar. [10]

Males are more at risk than females. The increased frequency of head injuries observed in the studied men is consistent with the existing literature[11] with a male to female ratio 6.1:1. This male predominance is found worldwide, though in Qatar the head injury rate among men is very high. In Germany, majority of those injured were males with a male: female ratio of 3.4:1.[11]

Pain (99%), bleeding from different regions (74%) are the most common presenting symptoms in trauma patients due to normal

physiology of human body similarly Hijino et al., Razavi et al., Dagan et al., Gilyoma et al.[12-15]

In the study conducted by Siddharam Patil and Girish P.B. 10% cases of facial palsy were reported and were treated conservatively. [16,17]

**Conclusion:**

Screening of all the patients with head and neck injuries for the presence of trauma in the ENT region should be introduced to enable early detection and therefore prevention of complications. Head and neck trauma represents one of the most frequent location of a traumatic event and a major cause of death or debilitating disease due to mechanic injuries. In severe trauma, ENT exam is postponed until life-threatening lesions are stabilized. Due to minor symptoms, frequently spontaneously resolved during recovery for other lesions, the patient will skip the head and neck examination. Our study underlies the opportunity of an ENT complete examination that may disclose unknown lesions, some of them with heavy impact onto the prognosis of the patient and the quality of its life.

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